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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,541	04/11/2001	David A. Morgenstern	MTC 6638.7	3285

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SENNIGER POWERS LEAVITT AND ROEDEL
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ST LOUIS, MO 63102

EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,541

Applicant(s)

MORGENSTERN ET AL.

Examiner

Taylor Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,15-18,23-31,46-49,60-66,74-76,93 and 98-101 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,15-18,23-31,46-49,60-66,74-76,93 and 98-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2-14, 19-22, 32-45, 50-59, 67-73, 78-81, 90-92, 94-97, 77, 82-89, 102-168.

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The Status of Claims :

Claims 1,15-18, 23-31,46-49,60-66,74-76, 93, and 98-101 are pending.

Claims 2-14,19-22, 32-45, 50-59, 67-73, 78-81, 90-92, 94-97, 77, 82-89, and102-168 have been withdrawn.

Claims 1,15-18, 23-31,46-49,60-66,74-76, 93, and 98-101 have been rejected.

Election/Restrictions

Applicant's election with traverse of Group I , claims 1,15-18, 23-31,46-49,60-66,74-76, 93, and 98-101 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that Group II is directed to a process for dehydrating a primary alcohol in the presence of a dehydrogenation catalyst comprising a copper-containing active phase, but not to a dehydrogenation catalyst ; Group III is directed to a process for a process of producing a salt of disodium iminodiacetic acid in the presence of a dehydrogenation catalyst comprising a copper-containing active phase ; and Claims 140-168 are within the scope of Group IV .

First, with respect to the first argument, Group II is directed specifically to a dehydrogenation catalyst comprising a copper-containing active phase in the process. Therefore, it is directly related to the dehydrogenating catalyst and its support system.

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Second, with respect to the second argument, Group III is directed to a process for producing a salt of disodium iminodiacetic acid, which belongs to the subclass of the carboxylic acid group. Therefore, each distinct subclass has attained recognition in the art as a separate subject for the inventive effort, and also a separate field of search.

Third, with respect to the third argument, the Examiner have acknowledged that Claims 140-168 are within the scope of Group IV. Therefore, Claims 140-168 can be rearranged to join the Group IV.

In response to applicants' arguments, there are two or more distinct, unrelated, different classes involved in the search of the unrestricted claims. The search is a burden whether or not they are so closely related to their searches. Furthermore, M.P.E.P. Section 808.02 gives legitimate reasons for the Examiner to insist on restriction such as the case of separate classification, which indicates that "each distinct subject has attained recognition in the art as a separate subject for the inventive effort, and also a separate field of search."

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

Claims 1 and 93 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a salt of a carboxylic acid, such as a salt of N-methyl-glycine, a salt of nitrilotriacetic acid, disodium imino diacetic acid, etc, does not reasonably provide enablement for all the salts of carboxylic acids known in the field of

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organic chemistry. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to include all the salts of carboxylic acids unrelated to the invention commensurate in scope with these claims.

Furthermore, there are "foreman factors or Wands factors" regarding unpredictability because a salt of a carboxylic acid includes any heterocyclic group, any aromatic group, any alicyclic group, and a diverse scope of acyclic groups. In addition, it does not exclude a salt of any bi-functional carboxylic acid such as a variety of amino acids. Therefore, there is no certainty that all the salts of carboxylic acids can be equally produced under the claimed reaction conditions and the reaction parameters. See In re Armbruster 185 USPQ 204 (CCPA 1985) and Angstadt et al. , 190 USPQ 152 (CCPA 1990).

Therefore, an appropriate correction is required.

The specification, while being enabling for a primary alcohol, such as N-methylethanolamine, N-ethyl ethanolamine, N-isopropyl methylethanolamine, etc, does not reasonably provide enablement for all the known primary alcohols in the organic chemistry. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to include all the known primary alcohols unrelated to the invention commensurate in scope with these claims.

Therefore, an appropriate correction is required.

Claim Rejections - 35 USC § 103

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 15-18, 23-31, 46-49, 60-66, 74-76, 93, and 98-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siebenhaar et al (WO 00/32310) in view of Franczyk et al (U.S. 5,739,390).

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Siebenhaar et al teaches a preparation of aminocarboxylic acid salts by oxidizing amine-group-containing primary alcohols, such as diethanolamine, triethanolamine (see page 7 ,lines 6-7) with an alkaline medium in the presence of a modified Raney copper catalyst in a quantity of 0.1 to 30 % by weight (see from page 4 ,line 28 to page 5, line 6), along with a promoting agent selected from boric acid, salts of fluorine complex anions, and etc. (see page 2 ,lines 2-3).

The instant invention, however, differs from the Siebenhaar et al in that the copper catalyst comprises a supporting structure which contains at least 10 % by weight non-copper metal ; an alkali metal salt of glycine or an N-alkyl-glycine is mentioned; the process comprises phosphonomethylating the carboxylic acid salt to form N-(phosphonomethyl)iminodiacetic salt , which further is oxidized to N-(phosphonomethyl)glycine or a salt.

Franczyk et al teaches a process to prepare amino carboxylic acid salts, such as the salts of glycine, iminodiacetic acid , N-methylglycine by contacting amino alcohols, such as monoethanolamine or diethanolamine (see col. 2 ,lines 44-57) with an alkali metal hydroxide in the presence of a copper catalyst containing alkali-resistant carriers (18 weight % copper and 82 % zirconium oxide) (see col. 8 ,lines 24-25). Furthermore, the process can be involved in phosphonomethylating the carboxylic acid salt to form N-(phosphonomethyl)iminodiacetic acid or a salt , which further can be converted to N-(phosphonomethyl)glycine or a salt (see col. 3 ,lines 3-5).

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Concerning the presence of the supporting structure, the reference is silent. However, the supporting structure is directly related to the optimization of the catalyst activity. Similarly, Siebenhaar et al does indicate that the catalyst activity can be increased by using the promoting agent in addition to the dehydrogenation catalyst (see page 1 ,line 20). Therefore, it would have been obvious to the skilled artisan in the art to have motivated to add the supporting to the catalyst in order to optimize the catalytic activity of the dehydrogenation catalyst. This is because the skilled artisan in the art would expect the addition of the supporting structure to the catalyst in the process to increase its catalytic activity as similarly successful as shown in the case of adding the promoting agent to the dehydrogenation catalyst in the reference.

Siebenhaar et al does teach the preparation of aminocarboxylic acid salts by oxidizing amine-group-containing primary alcohols with an alkaline medium in the presence of the modified Raney copper catalyst with the promoting agent. Also, Franczyk et al does teach the process to prepare amino carboxylic acid salts by contacting the amino alcohols with the alkali metal hydroxide in the presence of the copper catalyst containing alkali-resistant carriers (18 weight % copper and 82 % zirconium oxide). Both have commonly shared the process of preparing aminocarboxylic acid salts with a similar condition. Siebenhaar et al does not specify the amount of non-copper metal in the copper catalyst composition ,whereas the Franczyk et al does indicate 82 % zirconium oxide in the copper catalyst composition.

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Therefore, it would have been obvious to the skilled artisan in the art to have motivated to incorporate the Franczyk's et al amount of non-copper metal into the Siebenhaar et al catalyst composition in order to optimize the catalytic activity of the dehydrogenation catalyst. This is because the skilled artisan in the art would expect the catalytic activity in the process to increase by manipulating the amount of non-copper metal present in the catalyst composition as successfully shown in the Franczyk's et al reference.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hunter et al (U.S. 3,928,441) teaches an improved technique for making a Raney copper catalyst by contacting particulate copper/aluminum alloy particles used in the catalytic hydrolysis of olefinic nitrile to the corresponding amides.

Franczyk (U.S. 5,292,936) teaches a process to prepare amino carboxylic acid salts by contacting amino alcohols with an alkali metal hydroxide in the presence of a copper catalyst containing alkali-resistant carriers .

Urano et al (U.S. 5,220,055) teaches a process to prepare amino carboxylic acid salts by an oxidative dehydrogenation reaction of an amino alcohol in the presence of an alkali metal hydroxide in the presence of a copper containing catalyst and water.

Goto et al (U.S. 4,782,183) teaches a process to prepare amino carboxylic acid salts by subjecting to an oxidative dehydrogenation reaction of an a amino alcohol in the

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presence of an alkali metal and an alkali earth metal, water, and a catalyst containing copper and zirconium.

Franczyk (U.S. 5,367,112) teaches a process to prepare amino carboxylic acid salts by contacting amino alcohols with an alkali metal hydroxide in the presence of an effective amount of a copper catalyst containing various metals, such as chromium, titanium, and etc.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 703-305-0809. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman can be reached on 703-308-4698. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-2742 for regular communications and 703-305-7401 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.



April 5, 2003



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